



11 February 2008

Fanuatele Dr. T. Vaiaga'e, Director
American Samoa Environmental Protection Agency
Utulei Office Building
P.O. Box PPA
Pago Pago, AS 96799

Re: Request for revision of water quality certification and the definition of mixing zones for dissolved oxygen, turbidity, and light penetration for the Joint Cannery Outfall

StarKist Samoa and COS Samoa Packing (the canneries) discharge treated process wastewater through a common joint cannery outfall (JCO) and high-rate diffuser into the outer portion of Pago Pago Harbor. Seventeen years of monitoring have indicated no environmental degradation resulting from the discharge. The canneries submitted timely applications for the renewal of their respective National Pollution Discharge Elimination System (NPDES) permits (AS0000019 and AS0000027) to the U.S. Environmental Protection Agency (USEPA) in July 2005.

On 28 June 2007 the canneries requested water quality certification (WQC) and the definition of mixing zones from the American Samoa Environmental Protection Agency (ASEPA). The WQC and mixing zone definitions were granted on 12 July 2007. On 29 October 2007, after discussions with USEPA and ASEPA, the canneries requested a modification of the WQC and the definition of a mixing zone to account for chronic levels of ammonia. This request was granted on 18 December 2007.

On 9 January 2008 the USEPA published for public comment Draft NPDES permits and the canneries provided comments on those Draft Permits on 30 January 2008, within the allowable comment period. In the comment letters the canneries requested that the narrative receiving water limitations for dissolved oxygen (DO) and turbidity be specified as in the existing permits: specifically that the water quality standard is to be achieved at the edge of the zone of initial dilution (ZID). In addition, the same language was requested for the limitation on the new narrative limitation on light penetration. The canneries also requested a similar change in permit language for temperature, to reflect language in the existing permit. However, after discussions with USEPA the canneries do not believe this is necessary for temperature because the effluent temperature limitation is based on USEPA's previous finding that cooling of the wastewater through the pipeline will result in compliance at the discharge point in the receiving water.

Discussions with USEPA indicate that to maintain the language in the previous permit, ASEPA must include in the WQC provisions for mixing zones for these parameters. Although this was not done in the past, and therefore was not included in the previous request for WQC by the canneries, it is now a current requirement of USEPA. Therefore, the canneries request a modification of the previously approved WQC and mixing zones for DO, turbidity, and light

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penetration within the defined zone of initial dilution (critical initial dilution [CID]= 313:1 as applied by USEPA and ASEPA described in previous mixing zone applications). The following information demonstrates the assimilative capacity of the receiving water to support the requested zones of mixing:

Dissolved oxygen: There are limited direct measurements of effluent DO; however, an effluent DO of 0.0 mg/l is the reasonably expected critical condition. The water quality criterion is 5.0 mg/l. The ambient background DO required to maintain compliance at the edge of the ZID, for a CID of 313:1, is calculated as:

$$C_A = \frac{CID \cdot C_S - C_E}{CID - 1} = \frac{313 \times 5.0 - 0.0}{312} = 5.016 \text{ mg/l}$$

The ambient DO measured during the Harbor water quality monitoring events is consistently above 5 mg/l. The required excess DO required for a mixing zone (0.016 mg/l) is an order of magnitude smaller than normally accepted measurement accuracy. (It is noted that the water quality standards also require DO levels to be above 70 % of saturation, and this condition is also met based on the typical water temperatures measured in the receiving water.) Based on the above analysis, there is sufficient capacity for a mixing zone for DO. This is supported by previous monitoring, which has shown no effects of the discharge on the receiving water.

Turbidity: There are no direct measurements of effluent turbidity. Receiving water turbidity has been measured in various ways during water quality monitoring. *In situ* sensors are not accurate at the low turbidities in the receiving water but are consistently lower than the water quality criterion of 0.75 NTU. Analysis of samples shipped to mainland laboratories have been consistently lower, and typically an order of magnitude lower, than the water quality criterion. However, these samples are not received and analyzed by the laboratory within the accepted holding time. During the last water quality monitoring event, samples were collected and analyzed using a bench top instrument calibrated for low range turbidities with the following results:

Station	5 (Reference)			16 (Farfield)			18 (Farfield)		
Depth (ft)	3	60	120	3	60	120	3	60	120
Turbidity (NTU)	0.1	0.1	ND	0.11	0.39	0.14	0.23	0.24	0.25
ND = below instrument detection level									

Clearly there is assimilative capacity in the receiving water. The maximum allowable effluent turbidity, using the highest value listed above (0.39 NTU) would be:

$$C_E = CID(C_S - C_A) + C_A = 313(0.75 - 0.39) + 0.39 = 113 \text{ NTU}$$

Using the average value from the reference station (Station 5), which follows the general process applied by USEPA in developing permit effluent limitations, the maximum allowable effluent turbidity is:

$$C_E = CID(C_S - C_A) + C_A = 313(0.75 - 0.1) + 0.39 = 204 \text{ NTU}$$

As mentioned above there are no direct measurements of turbidity in the effluent, but visual observation of the combined effluent collected for bioassay testing clearly indicates the effluent turbidity is below 100 NTU. In addition, the routine monitoring in the vicinity of the discharge has not shown any effect of the plume even within the ZID.

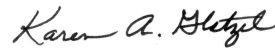
Light Penetration: Light penetration is affected by turbidity and suspended material in the water column. As described above, compliance with the turbidity standard is expected at the edge of the ZID. Effluent limitations are included in both permits for total suspended solids and nutrients (thus controlling phytoplankton growth). Therefore, light penetration is expected to meet the criterion at the edge of the ZID. Previous monitoring has demonstrated that light penetration is in compliance with the water quality standards.

Based on the discussion above, we request that ASEPA modify the WQC to allow mixing zones so that the new NPDES permits may provide for meeting the receiving water quality criteria for DO, turbidity, and light penetration at the edge of the ZID. This is consistent with the existing permits and does not provide any relaxation of existing permit conditions.

Your office has been notified by both canneries that **gdc** is authorized to act in their behalf in the request for water quality certification and definition of the mixing zones listed above. If you have any questions or wish to discuss this request please contact **gdc** or contact the canneries directly.

We appreciate your time and attention to this matter,

Sincerely,



Karen A. Glatzel
Steven L. Costa

Copy to: Carl Goldstein/USEPA; Peter Peshut/ASEPA; Edna Buchan/ASEPA
Tim Ruby/StarKist; Jim Cox/ COS Samoa Packing;
Joe Carney/StarKist; Samuel Augspurger /COS Samoa Packing